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EXAMINER

ABELSON, RONALD B

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/295,163

Applicant(s)

BARBOUR ET AL.

Examiner

Ronald Abelson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-8 is/are rejected.
- 7) ☒ Claim(s) 4 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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Response to Amendment

1. The indicated allowability of claims 1-3, and 5-8 is withdrawn in view of the newly discovered reference(s) to Lum, Park, Anderson, and Ikeda. Rejections based on the newly cited reference(s) follow.

Claim Objections

2. Claim 1 objected to because of the following informalities: On line 5 the word "band" should be "baud". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. Claims 1 and 6-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Lum (US 6,272,529) in view of Park (US 5,459,578) and Anderson (US 3,775,751).

Regarding claims 1 and 7, Lum teaches a method and apparatus for a digital serial communications hub (fig. 2 combination of boxes 2 and 4), comprising: a controller (fig. 2 box 4); and a plurality of receiver-transmitter units operatively coupled to the controller (fig. 2 see connection

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from box 2 to 4 and from box 4 to 6); wherein the controller is programmed to delay (buffering, col. 4 lines 24-27), route (fig. 2: see routing between box 4 and multiple I/O Controllers), and regenerate data at mixed baud rates (col. 4 lines 31-33, col. 9 lines 13-16), mixed character framing bits (stop bits, parity option, col. 9 lines 13-16) and mixed protocols (col. 4 lines 12-17). Note, regeneration is standard in controllers where the output signal is a clean version of the input signal.

Lum is silent on digitizing and quantizing all incoming signals in the time domain.

Park teaches analog signals being digitized and quantized before being transmitted to a personal computer (fig. 4 box 24, 26, col. 5 lines 25-27).

Therefore it would have been obvious to one of ordinary skill in the art, having both Lum and Park before him/her and with the teachings [a] as shown by Lum, a digital serial communications hub, comprising: a controller; and a plurality of receiver-transmitter units operatively coupled to the controller; wherein the controller is programmed to delay, route, and regenerate data at mixed baud rates, mixed character framing bits and mixed protocols, and [b] as shown by Park, analog signals being digitized and quantized before being transmitted to a personal computer, to be motivated to modify

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the system of Lum by attached a digitization and quantization device (fig. 4 box 24) like the one taught by Park to the PC of Lum (fig. 2 box 2). This would improve the system by facilitating analog signals to be processed by the system.

Although Lum teaches mixed baud rates, the inventor is silent on baud rate detection.

Anderson teaches baud rate detection by measuring data transition times (fig. 2 box 58, fig. 3, col. 6 lines 46-63).

Therefore it would have been obvious to one of ordinary skill in the art, having both the combination of Lum and Park and Anderson before him/her and with the teachings [a] as shown by the combination of Lum and Park, a digital serial communications hub, comprising: a controller; and a plurality of receiver-transmitter units operatively coupled to the controller; wherein the controller is programmed to delay, route, and regenerate data at mixed baud rates, mixed character framing bits and mixed protocols, and analog signals being digitized and quantized before being transmitted to a personal computer, and [b] as shown by Anderson, baud rate detection by measuring data transition times, to be motivated to modify the system of the combination of Lum and Park by incorporating the baud rate detector(fig. 2 box 58) within the master controller of Lum (fig. 2 box 4). This would improve the system by

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providing a means for baud rate detection. Anderson states the same communication line may be used by several terminals transmitting at different baud rates (col. 2 lines 15-20).

Regarding claim 7, in addition to the limitations listed above, Lum teaches error correcting in the time domain (col. 4 lines 24-27).

Regarding claim 6, Lum teaches the controller is further programmed to delay retransmission of the received data (buffering, col. 4 lines 24-27).

Regarding claim 8, as previously stated, Anderson teaches measuring the received data's transition times in the time domain (fig. 2 box 58, fig. 3, col. 6 lines 46-63), Lum teaches storing data values (buffering, col. 4 lines 24-27), analyzing the stored time values to determine if any error correction should be applied to the values (error detection, col. 4 lines 24-27) and, if so, applying an error correction procedure to the values in need of error correction and reconstructing the received data with error correction (error correction, col. 4 lines 24-27).

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4. Claims 2, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lum, Park and Anderson as applied to claim 1 above, and further in view of Ikeda (US 6,505,220).

Lum teaches storing in memory the time domain data (buffering, col. 4 lines 24-27).

Although Lum teaches error correction, the inventor is silent on filtering for error correction.

Ikeda teaches filtering for error correction (fig. 7 box 6-1, 6-2, 13).

Therefore it would have been obvious to one of ordinary skill in the art, having both the combination of Lum, Park and Anderson and Ikeda before him/her and with the teachings [a] as shown by the combination of Lum, Park and Anderson, a method and apparatus for a digital serial communications hub, comprising: a controller, and a plurality of receiver-transmitter units operatively coupled to the controller, wherein the controller is programmed to delay, route, and regenerate data at mixed baud rates, mixed character framing bits and mixed protocols, and [b] as shown by Ikeda, filtering for error correction, to be motivated to modify the system of the combination of Lum, Park and Anderson by lowpass filtering the data before performing the error correction routine. This would improve the system by

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removing low frequency noise that may cause bits to be incorrectly calculated.

Regarding claim 3, as previously stated, Anderson teaches measuring the received data's transition times in the time domain (fig. 2 box 58, fig. 3, col. 6 lines 46-63), Lum teaches storing data values (buffering, col. 4 lines 24-27), analyzing the stored time values to determine if any error correction should be applied to the values (error detection, col. 4 lines 24-27) and, if so, applying an error correction procedure to the values in need of error correction and reconstructing the received data with error correction (error correction, col. 4 lines 24-27).

Regarding claim 5, Lum teaches the controller is a microcontroller including time module (data bus arbitration, data buffering, col. 4 lines 24-27), and the step of reconstructing the received data is performed by sequentially moving the time values into the timer module (buffering, col. 4 lines 24-27) where they are used to reconstruct the data (error correction, col. 4 lines 24-27), including the use of a port identifier associated with the received data to determine the

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port(s) on which the data will be re-transmitted (col. 10 lines 15-21).

Allowable Subject Matter

5. Claims 4 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter.

Regarding claims 4 and 9, nothing in the prior art of the record teaches or fairly suggests determining a common denominator of a standard baud rate, in combination with the other limitations listed in the claim.

Response to Arguments

7. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

The examiner agrees with the applicant's connection that the prior art of record does not teach measuring data transition times (pg. 3 lines 9-13). Therefore, a new search was performed.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Abelson whose telephone number is (703) 306-5622. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

RA
Ronald Abelson
Examiner
Art Unit 2666

April 2, 2003

Seema S. Rao
SEEMA S. RAO 4/7/03
SUPERVISORY PATENT EXAMINER
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